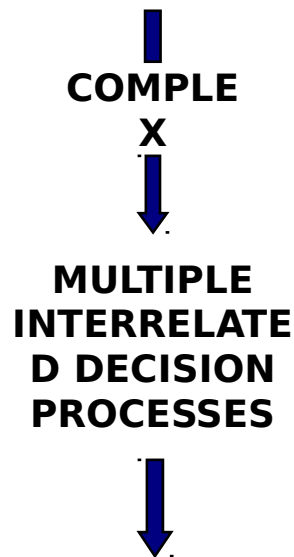


- Executive Summary
- Company Selection for Benchmark
- Quality Assurance Framework
- Benchmark Company Observations
- Industry Quality Assurance Cost Estimates
- **Industry Selection of Quality Assurance Methods**



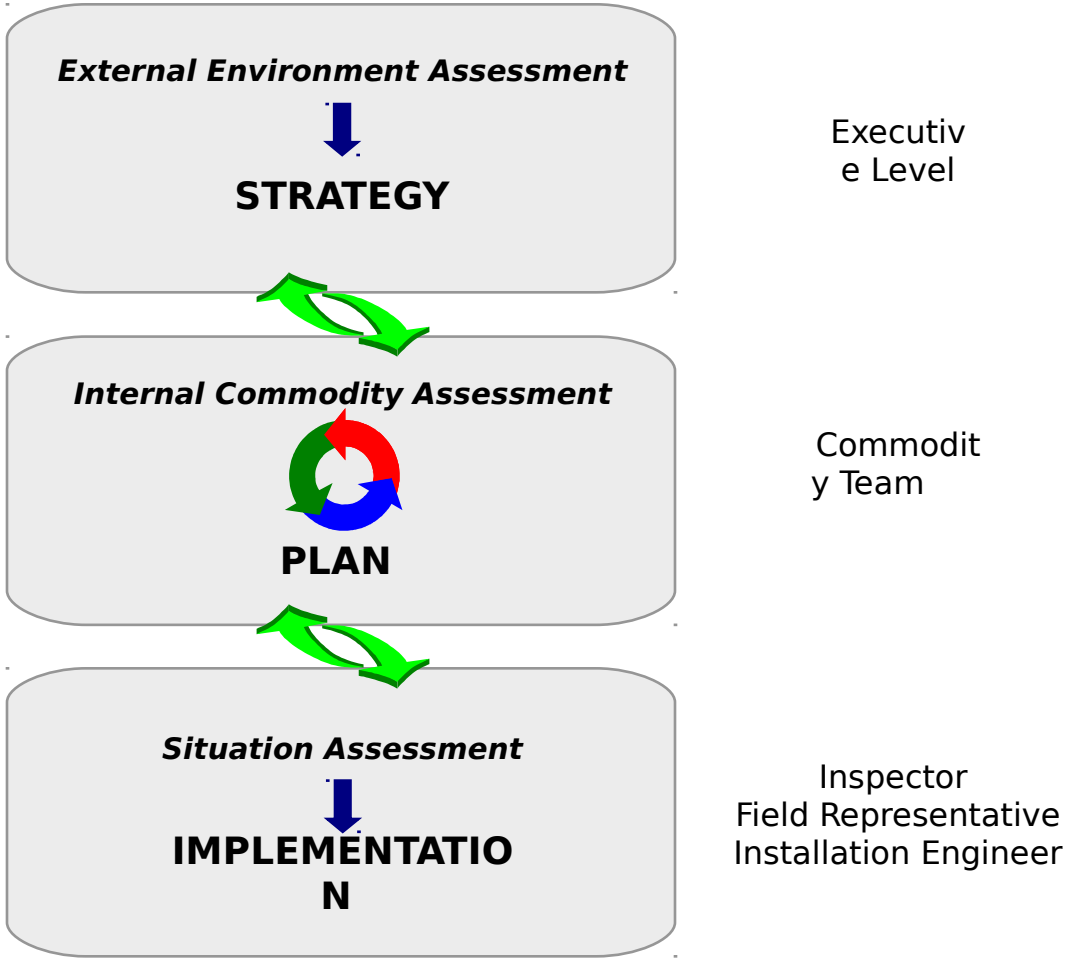
**We found that the selection of Quality Assurance methods is not driven by a simple risk assessment model.**

**— Quality Assurance Method Selection —**

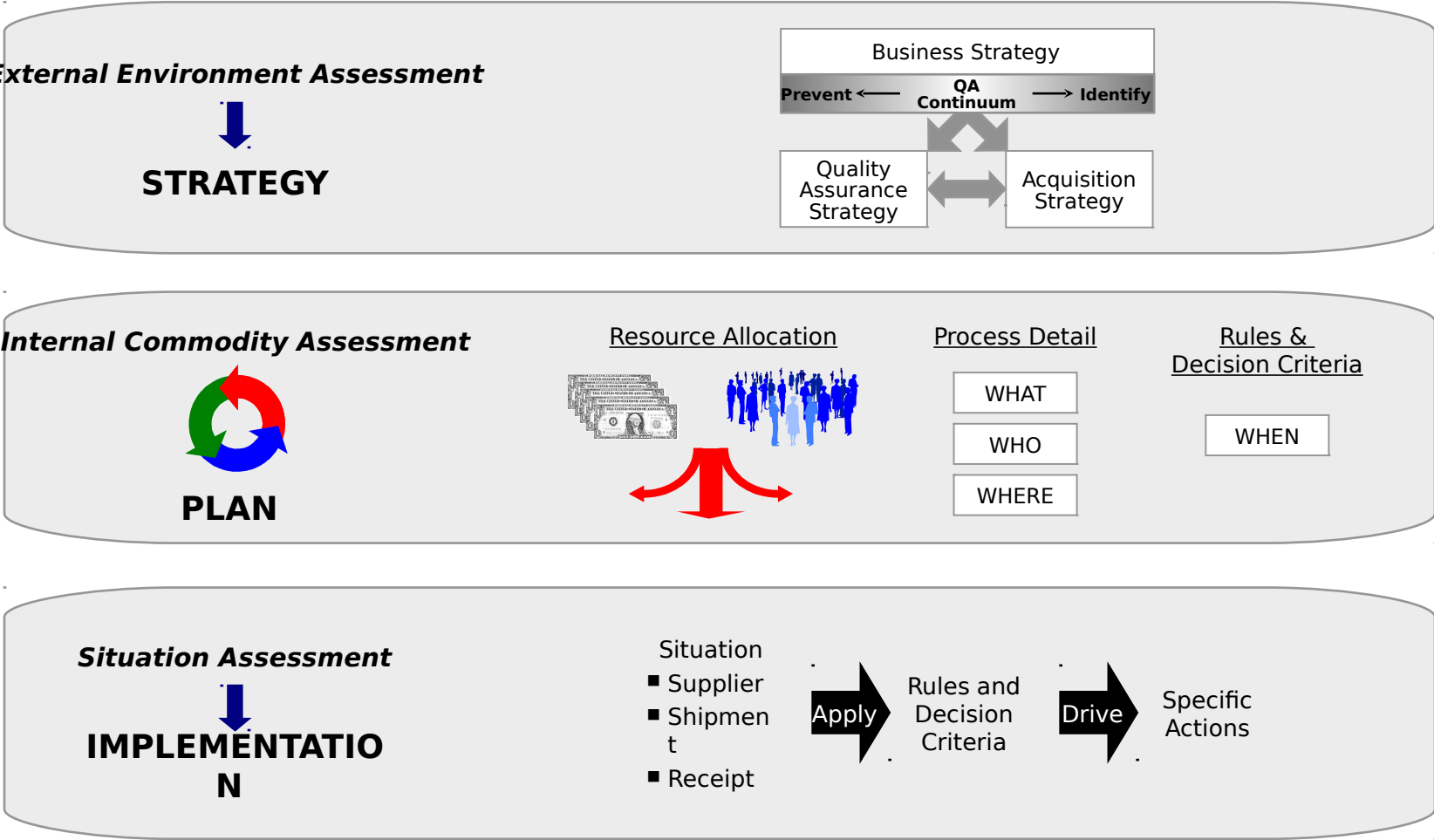


- Parameters for QA implementation are set by top management
- Multiple combinations of QA methods are applied
- QA methods are interdependent - never used in isolation
- Risk identification and reduction is inherent in every process
- Automated determination of inspection frequency and sample size

We found a clear link from Quality Assurance Strategy, to commodity-specific Plans, to application of a specific quality assurance method in the world class companies benchmarked.



The Quality Assurance Strategy and Commodity Plan(s) coordinate when, where, and how each quality assurance method is applied.



The External Environment Assessment drives the relative importance of quality by identifying the forces impacting the current and future success of the company, and corresponding responses to those forces.

Strategy  
Plan  
Implementation



Depending on the External Environment, quality may or may not be a key driver of future company success, the Business Strategy defines appropriate supplier quality initiatives.

Strategy

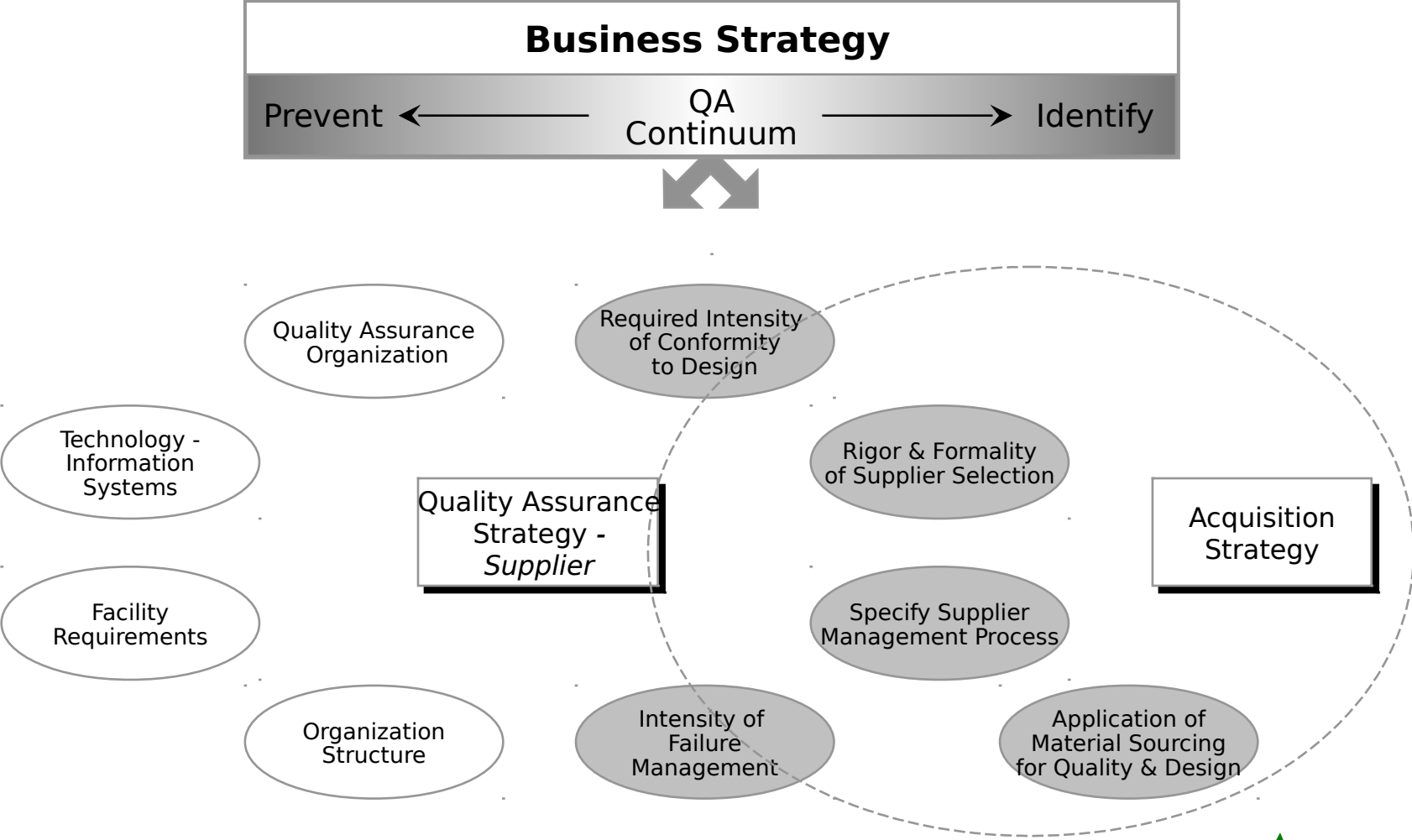
Plan

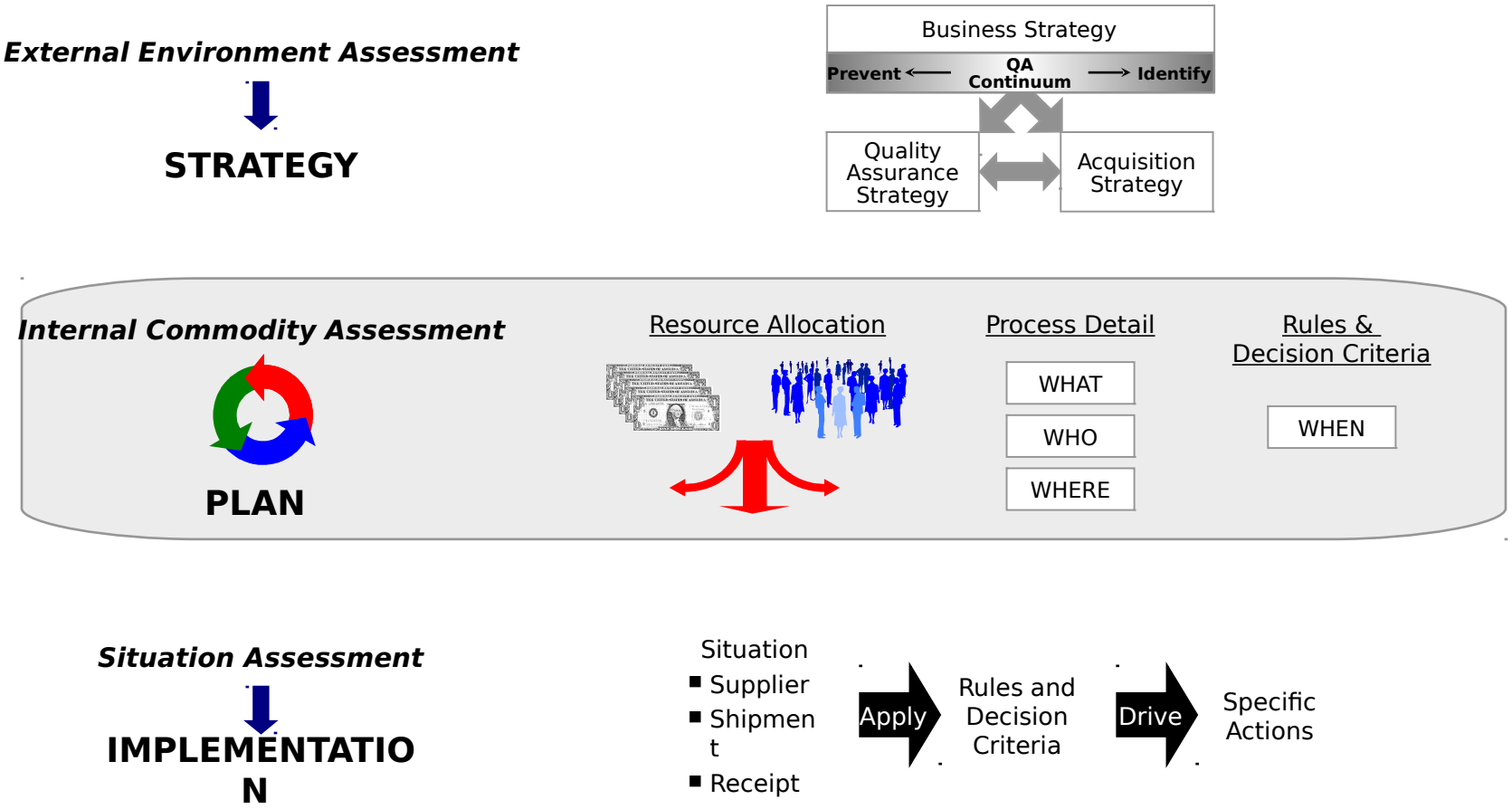
Implementation



**The Quality Assurance and Acquisition Strategies work in unison to define how the quality implications of the business strategy will be achieved.**

Strategy  
Plan  
Implementation





After the Quality Assurance Strategy is defined, commodities are categorized according to business impact and technology risk assessment results, allowing effective resource allocation.



**Categorize Commodities**  
Based On Commodity Assessment Results

Impact/Risk	Highest	Medium	Lowest
Resource Allocation	Bulk of available resources allocated here	Minimal Very dependent on company's partnering philosophy	Minimal to zero resources allocated
Target Performance Level	Achieve high level of confidence in supplier performance	Desire to have confidence in supplier performance	Acceptable quality expected
Available Quality Assurance Methods	All allowed by QA Strategy Focus on "allowed" methods furthest toward Prevent	Less intensity of application	QA methods applied at minimal intensity, if at all

Accomplished at Executive Level, based on information from the Commodity Teams

The Commodity Assessment defines how the elements of the Quality Assurance Strategy will be implemented within each commodity based on business and technology risk.

— Commodity Assessment —



<u>BUSINESS IMPACT</u>		<u>TECHNOLOGY RISK</u>	
LOW (Yes)	HIGH (No)	LOW (No)	HIGH (Yes)
_____	_____	_____	_____
_____	_____	_____	_____
	Impact of Non-Conformance		Commodity crucial to current or future competitive advantage
	Impact of Failure		Rapid technology evolution
	• Safety		Limited supply base with technical capability to produce required product or process
	• Relative to end item operation		
	• Cost		High complexity of product or manufacturing process
	• Subsequent Processes		
_____	Failure Identification	_____	
	• Ability to screen in advance		
	• Identifiable through inspection		

OTHER BUSINESS FACTORS

	Yes /No	
Department of Transportation (DOT) Certification of Suppliers Required	_____	} Yes = Business Impact Reduced
Industry Certification Required	_____	
Acceptable Quality History	_____	} Yes = "Drives" Quality Plan
DOT mandated Quality Assurance Actions	_____	

**The commodity team must assess how far specific suppliers are from the target performance level and how far the company is from being able to implement the strategy to develop suppliers to that level.**



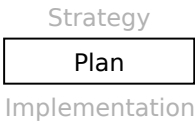
**— Assessment of Supplier Base —**

- Historical quality performance of supplier
- Where supplier is within the qualification process
- Is the supplier certified?
- Supplier assessment performance
  - To include assessment rating and any open action items
- Volume
- Supplier's willingness to improve

**— Assessment of Company —**

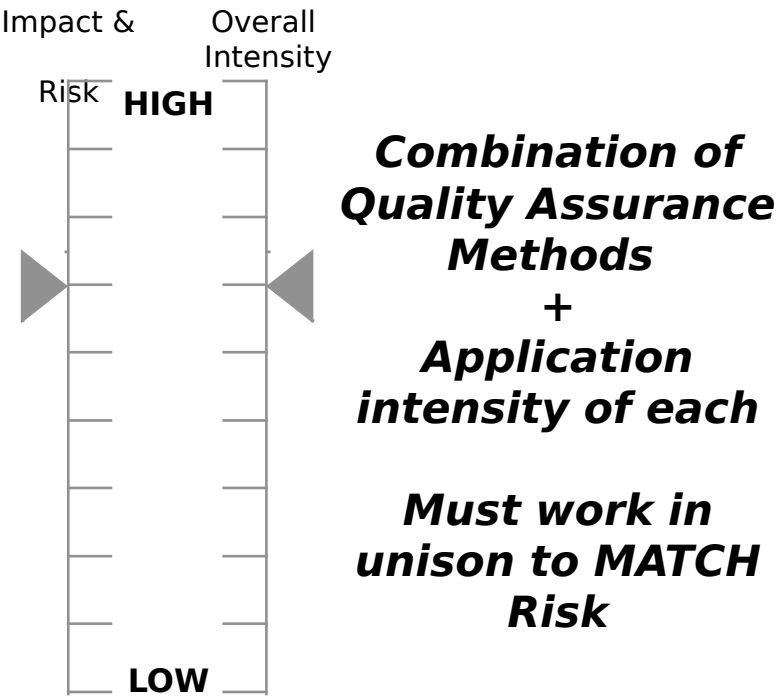
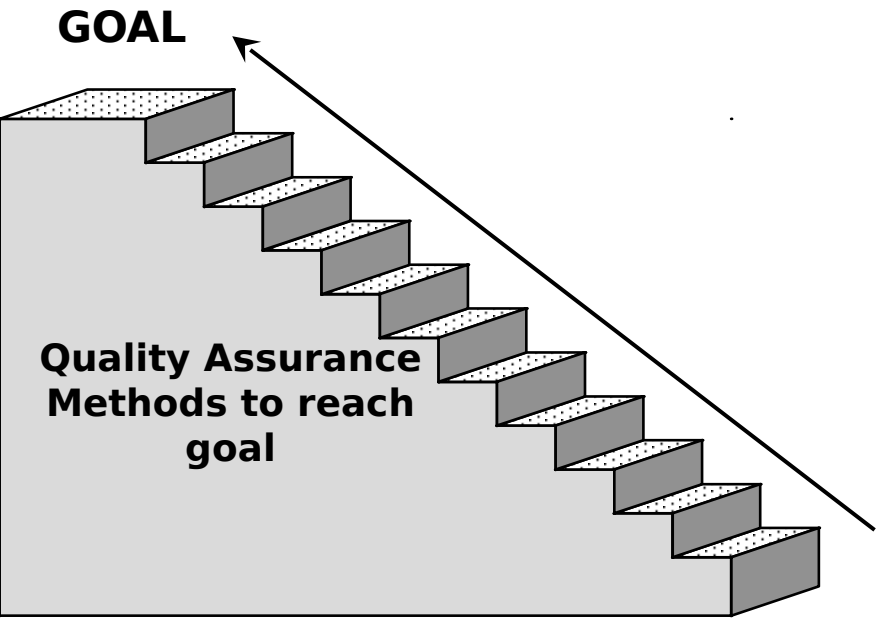
- Building a business case
  - Tailored to the company
  - Iterative
- Cost Factors
  - Expected benefit of each potential method
- Expertise and availability of resources
  - What's the easiest way for us to do this?

Based on the previous assessment, the company develops a plan to develop suppliers to move suppliers to target performance level while maintaining the quality of current acquisitions.

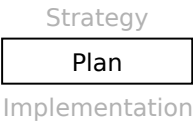


— *Methods to Develop Suppliers* —

— *Methods to Ensure Quality* —



**For each Quality Assurance Method selected for use, the commodity team must define process detail and determine criteria for application, this becomes the implementation plan.**



— *Process Design* —

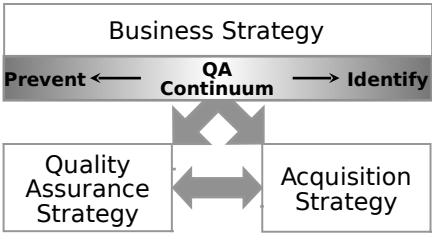
— *Rules & Decision Criteria* —

WHAT	WHO	WHERE	WHEN
<ul style="list-style-type: none"><li>■ Specific methods or procedures</li><li>■ Critical characteristics or focus areas</li><li>■ Documentation of results</li></ul>	<p>INTERNAL</p> <ul style="list-style-type: none"><li>■ Team Composition</li><li>■ Owning Organization</li></ul> <p>OUTSOURCE</p> <ul style="list-style-type: none"><li>■ Third Party</li><li>■ Industry Group</li><li>■ Supplier</li></ul>	<ul style="list-style-type: none"><li>■ Supplier’s site</li><li>■ Receiving</li><li>■ Engineering</li><li>■ Outside Lab</li></ul>	<p>OBJECTIVES</p> <ul style="list-style-type: none"><li>■ Define when quality assurance actions should be performed, and the intensity</li><li>■ Define response to defects</li><li>■ Balance Quality Assurance methods to minimize risk</li><li>■ Put responsibility for quality on supplier, SMARTLY</li></ul>

May require definition by  
Part Number

Defined for Each Quality Assurance  
Method Selected for Use

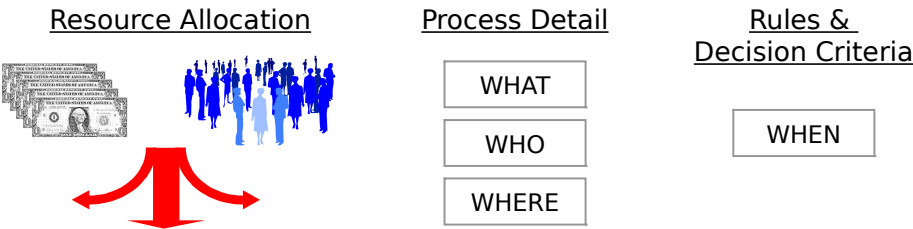
External Environment Assessment



Internal Commodity Assessment



**PLAN**



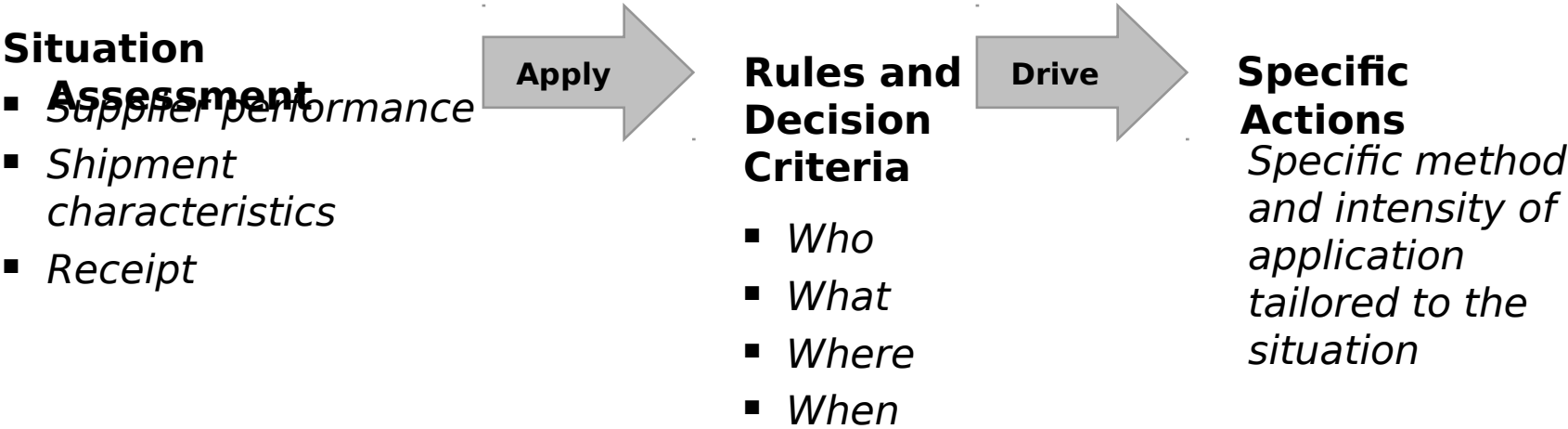
Situation Assessment



Once the Quality Assurance strategy is defined, and the general commodity Quality Assurance Plan is developed, implementation of the specific quality assurance method is driven by the current situation.



— Situation Assessment Flowchart —



Feedback is exchanged continuously throughout the acquisition timeline to re-adjust the Quality Assurance Strategy as necessary.

